

IN THE ABSTRACT:

The Abstract as amended below with a replacement Abstract shows added text with underlining and deleted text with ~~strike through~~.

Please DELETE the Abstract in its entirety and substitute the attached new Abstract.

A multilevel image into which a color or a ~~back-and-white~~ black-and-white image is converted is input, and a slightly indistinct binary image generating unit generates a slightly indistinct binary image that includes a slightly indistinct line pattern and does not include background noise. Additionally, a shape-preserved binary image generating unit generates a binary image that preserves the shape of a line pattern and includes background noise. These images are ANDed for each pixel, so that a binary image that preserves the shape of the line pattern and does not include the background noise is generated.